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ABSTRACT

This study examined student drawings as an unobtrusive measure of attitudes toward school. A total of 94 fouth, fifth, and sixth grade students were asked to draw two pictures: one of a teacher; and one of a teacher and a pupil, imagining that they had just asked the teacher a question and the teacher was answering it. At the conclusion of the drawing session students were administered the Describe Your School Inventory (DYS), a measure of pupil attitudes toward school. Five teachers, all of whom had contact with the students in the sample, were asked to place these students in categories labeled accepting, concerned, indifferent, and rejecting. Measures of interpersonal proximity and teacher-pupil size ratios were obtained for the drawings. Student attitudinal data were analyzed with analysis of variance. A procedure suggested by Hoyt was employed to analyze the reliability of the teacher ratings. Results are listed for all analyses run. Results tend to support the hypotheses that: (1) children with high DYS scores would position themselves closer to the teacher in situational drawings, and (2) as the ratio of teacher height to pupil height approached 1.00, the pupil nomination into a teacher perception group would approach the accepted category and the pupil's DYS score would increase. The significance of the method is discussed. (Author/SB)

The Diagnostic Value of Psychologically Meaningful Teaching Units As Expressed in Children's Classroom Drawings*

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Problem

Classroom teachers lack an unobtrusive, nonreactive measure of pupil attitudes towards the teacher and school. In the behavior exchange of the classroom, particular psychologically meaningful classroom behavioral contexts may exist which are important in creating and directing pupil attitudes toward the teacher and school. A theory of affiliation developed by Mehrabian (1974) suggests an attraction-avoidance hypothesis which is reflected in expressed interpersonal proximity. This proximity variable may find expression in pupil drawings of psychologically meaningful teaching units. When these teaching units are expressed by pupils under standardized conditions, the medium of classroom art emerges as a potentially useful diagnostic tool for the classroom teacher.

Objectives

Objectives of this investigation included: (1) The exploration of pupil drawings of hypothesized psychologically meaningful teaching units as a diagnostic tool within naturalistic classroom settings; (2) The investigation of selected features of pupil drawings of a teacher with teacher ratings of pupils; (3) The investigation of relationships between pupil drawings of a teacher and scores of the Describe Your School Inventory; (4) The investigation of expressed interpersonal proximity and teacher-pupil size ratios in drawings of psychologically meaningful teaching units and their relationship to pupil attitudes toward school.

Significance

This study: (1) Operationalizes with children's drawings the theoretical models for behavioral analysis developed by Hall (1973) and further elucidated by Edney (1974); (2) Investigates the consistency of teacher perceptions of pupils involved in an open classroom arrangement; (3) Examines expressed interpersonal proximity and teacher-pupil size ratios in pupil drawings. These drawings reflect a hypothesized psychologically meaningful teaching unit and may relate to teacher rating profiles and self-reports of pupil attitudes toward school.

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Procedures

The present investigation has operationalized recent methodological considerations of import to the unobtrusive measure of pupil attitudes toward school. Specifically: (1) Five teachers were asked to place the same students in categories labeled "accepting, concerned, indifferent, and rejecting"; (2) Employing a standard paper size and designated crayons, pupils were asked to complete two separate drawings; (3) Pupils were asked to draw "a picture of a teacher" and "a picture of a pupil and a teacher"; (4) A specific context was suggested to the pupils for their pupil-teacher drawing; Pupils were asked to imagine "that they had just asked the teacher a question, and the teacher was answering them"; (5) At the conclusion of the drawing session pupils were administered the Describe Your School Inventory; a measure of pupil attitudes toward school with a heavy emphasis on the pupil's affiliation toward the teacher.

Data

The study sample included five teachers all of whom had contact and were responsible for the sample of ninety-four fourth, fifth, and sixth grade pupils. The teacher sample included two males and three females. Current educational terminology would characterize the sample teachers and pupils as participating in an "open" classroom arrangement.

Data Analysis

A procedure suggested by Hoyt (1941) was employed in the analysis of data related to the reliability of the teacher ratings. An analysis of variance procedure was applied to the pupil attitudinal data. Employing the metric system, a measure of interpersonal proximity was obtained, as well as teacher-pupil size ratios. A discriminate analysis procedure was applied to all relevant pupil drawing variables within the factored pupil profiles. A multiple regression analysis was performed with dimensions of the pupil attitudinal data as the criterion measure and pupil drawing dimensions as predictors.

Results

1) An internal consistency reliability estimate of .91 (K-R 20) is reported for the Describe Your School Inventory. The Describe Your School Inventory is a measure of pupil attitudes toward school with a heavy emphasis on teacher instructional strategies.

2) Inclusion of the variables pupil height, teacher height, teacher-pupil distance, teacher-pupil height ratio and teacher drawing height (a separate drawing) in the regression equation predicting the criterion DYS score produced a significant ($p < .01$) multiple R of .40 and an R square of .16 (Table I).

3) Statistically significant simple correlation coefficients included the DYS with teacher-pupil distance (-.32), the DYS with teacher-pupil ratio (.24) and the DYS with teacher drawing height (-.26) (Table I).

4) None of the standardized beta weights produced in the regression equation achieved statistical significance. However, the beta weight for teacher-pupil distance approached significance at the $p < .05$ level.

5) A Q-factor analysis with five separate teacher ratings of the same ninety-four students produced five rating profiles. Factor labels and variable differences with factors are reported (Table II).

6) Variable means, rater means and F-ratios within each of the five factors are reported (Table III, IV, V).

7) Three of the five teachers rating the ninety-four students varied significantly $p < .01$ in their disposition to discriminate among students placed in the categories labeled accepted, concerned, indifferent and rejected. Three of the five raters were very reluctant to nominate students to the rejected category prefering instead to use the concerned and indifferent categories (Table V).

8) Only the variable pupil height acheived statistical significance ($p < .05$) in discriminating between the five factors produced from factored teacher ratings of pupils (Table V).

9) A discriminant analysis of teacher rating profiles resulting from the Q-factor analysis produced highly significant differences $p < .01$ between the profiles. Pupils could be reliably placed in factors when rater profiles were considered: Ninety-two percent correct placement (Table VI).

10) A discriminant analysis of pupil drawing variables within the groups resulting from the Q-factor analysis produced no significant differences between the profiles. Pupils could not be reliably placed in factors when drawing variables were considered: Thirty-four percent correct placement (Table VII).

Discussion

When teachers are asked to place students into categories labeled accepted, concerned, indifferent and rejected, response sets in the form of reluctance to reject (generosity error) or high disposition to discriminate (accurate perceptions or severity error) seem to be present. This result would suggest caution in using only one teacher's evaluation of pupils along any selected dimension. The teacher sample included two men and three women. The least discriminating teacher (rater 1, no rejected students) was also the team leader and had less daily contact with the pupils. Her perceptions may very well have related to her role as planner and organizer within the team. The severest teacher (rater 3, 14 rejected students) was a male and the team disciplinarian.

The original hypothesis that children with high DYS scores would position themselves in closer proximity to the teacher in the situational drawings seems to have been confirmed. The low DYS score (33.1) and relatively high distance (87.3) within rating profile factor four (labeled rejected) lends further support to this hypothesis. A second hypothesis suggested that as the ratio of teacher height to pupil height approached 1.00 (the same height for each figure in the situational drawing) the pupils nomination into a teacher perception group would approach the accepted category and the pupils DYS score would increase toward fifty. The trend of the data is in the direction of confirming this hypothesis (.24).

The significant differences in pupil profiles factored from teacher ratings might suggest that pupils are exhibiting particular classroom behaviors which several teachers consistently find acceptable or unacceptable from the teachers role vantage point. Clearly, to be rated as "someone you would like to have back again just for the sheer joy of it" by five teachers, the pupil must be exhibiting consistently pleasing and situationally appropriate behaviors to all members of the team. Likewise, the less behaviorally consistent child may meet with mixed reviews by his teachers, dependent perhaps on the expectations of the particular teacher and the classroom situational contexts.

While teacher ratings did predict group membership (92%) drawing dimensions did not (34%). Sample size could be a partial cause for this lack of predictability as well as the limited variability within two of the five raters.

What is of significance diagnostically is the methodology of the data collection. The suggestion that the child draw a "naturalistic classroom context" enhances the analysis and diagnostic potential of selected variables within the drawing. Similarly, data collected in this fashion provides prescriptive direction to the classroom teacher. In cases where the child has drawn the teacher at some distance from himself, the teacher might, as a matter of style, attempt to respond to questions from this child at a closer proximity to communicate more concern and acceptance than the child may be perceiving.

TABLE I

Multiple R, R Square, R Square Change and Simple R for Contributing Pupil Drawing Dimensions with Scores on the Describe Your School Inventory

Variable Name	Multiple R	R^2	R^2 Change	Simple R
Pupil Height	.1455	.0211	.0211	.1454
Pupil-Teacher Proximity	.3314	.1098	.0886	-.3236*
Teacher Height	.3855	.1485	.0387	-.1857
Teacher-Pupil Height Ratio	.3856	.1486	.0001	.2414*
Individual Teacher Drawing	.4022	.1617	.0131	-.2605*

*$p < .05$

TABLE II

Q-Factor Analysis of Ratings by Five Teachers of Ninety-three Pupils Ranked as Accepted, Concerned, Indifferent or Rejected

Factor*	Eigen Value	Percentage of Variance	Cumulative Percentage
1	18.1773	34.3	34.3
2	15.4517	29.2	63.5
3	10.5489	19.9	83.4
4	8.8215	16.6	100.0

*Four factors were extracted plus an additional factor of students who were labeled as accepted by all five teachers. These students were not entered into the factor analysis. Factor 3 most closely approximates Factor 5 the totally accepted pupil.

TABLE III

Mean Ratings of Raters Within

Factored Categories in a Discriminant Analysis

Rater	Factor 1	2	3	4	5	$\bar{\bar{X}}$
1	1.25	1.42	1.50	1.60	1.00	1.34
2	1.22	1.14	1.70	3.50	1.00	1.44
3	2.16	2.89	1.50	2.33	1.00	2.19
4	2.02	2.25	2.70	2.22	1.00	2.06
5	3.30	1.30	1.60	2.44	1.00	2.18

TABLE IV

Pupil Drawing Variable Means

and Describe Your School Mean Scores

Within Factors

Variable	Factor 1	2	3	4	5	$\bar{\bar{X}}$
DYS	36.02	40.07	36.80	33.11	39.54	37.44
Pupil Height	91.30	108.57	144.80	91.77	99.18	103.10
Teacher Height	145.72	156.85	182.30	160.33	138.45	153.47
Teacher-Pupil Proximity	80.55	57.10	69.30	87.33	61.27	70.76
Individual Teacher Drawing	195.11	214.10	200.60	200.22	198.36	202.23
Teacher-Pupil Height Ratio	.74	.70	.79	.63	.73	.72

TABLE V

Univariate F-Ratios Between Factors for Raters Describe Your School Inventory Scores and Drawing Variables

Raters	F-Ratio	DYS	F-Ratio	Drawing Dimensions	F-Ratio
1	1.84	DYS	1.74	Pupil Height	2.88*
2	58.50**			Teacher Height	.82
3	17.31**			Pupil-Teacher Proximity	.56
4	8.6*			Individual Teacher Drawing Height	.36
5	62.68**			Pupil-Teacher Ratio	.27

* $p < .05$

** $p < .01$

TABLE VI

Discriminant Analysis of Factor Groups by Raters

Discriminant Function	Eigen value	Relative Percentage	Canonical Correlation	Functions Derived	Wilks' Lambda	Chi Square	DF	Sig. Level
				0	.025	321.78	20	0.01
1	3.36	46.09	.878	1	.112	191.94	12	0.01
2	2.85	39.05	.861	2	.430	73.19	6	0.01
3	.83	11.40	.674	3	.790	19.82	2	0.01
4	.25	3.46	.449					

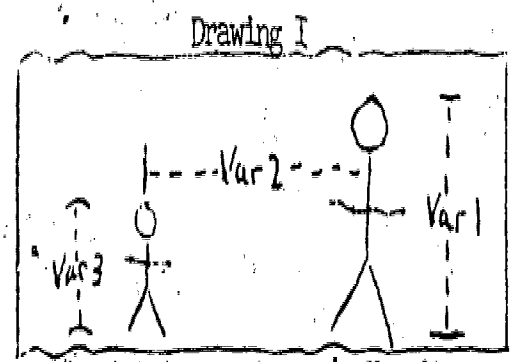
TABLE VII

Discriminant Analysis of Factor Groups by Drawing Dimensions

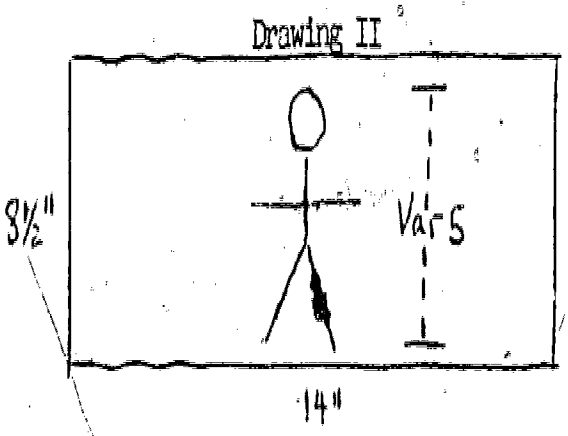
Discriminant Function	Eigen value	Relative Percentage	Canonical Correlation	Functions Derived	Wilks' Lambda	Chi Square	DF	Sig. Level
				0	.766	23.41	20	.26
1	.140	49.60	0.35	1	.874	11.85	12	.45
2	.129	45.85	.33	2	.98	1.12	6	.98
3	.012	4.41	.11	3	.99	.03	2	.98
4	.000	.14	.02					

APPENDIX I

Drawing Format and Instructions
Summary with Findings



Var 4 = teacher-pupil ratio $\frac{\text{Var 3}}{\text{Var 1}}$



Instructions

Drawing I: "Draw a picture in which you have just asked the teacher a question and he or she is answering the question."

Drawing II: "Draw a picture of a teacher."

Procedures for the Nomination of Students to Categories by Teachers

Accepted: "Name one student you would like to have again for the sheer joy it it."
Concerned: "Name one student you would spend more time with if you could."
Indifferent" "Name one student you would be least prepared to talk about at a parent-teacher conference."
Rejected: "If you could decrease your class size by one student, who would it be?"

Results

Teacher Pupil Proximity (Var 2) negatively related to DYS score

Teacher Pupil Ratio (Var 4) positively related to DYS score

Independent Teacher Height (Var 5) negatively related to DYS score

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